

## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention sticks in more detail the label which inputted tire information into the bead part profile part of the unvulcanized tire (it is also called a green tire) by being stabilized with sufficient accuracy with respect to the label sticking method and its device to a tire, Tire information, such as tire sizes inputted into the label by the label reader, quality information, and production information, is read in the stuck label, and it is related with the label sticking method and its device to the tire which made possible what is recorded on a database.

[0002]

[Description of the Prior Art]By the forming cycle of the tire which produces various tires, conventionally. Tire sizes, quality information, production information (of who work is it in where when?), etc. are made into tire information, are bar-code-ized, it inputs into a label, and the work which sticks this label on the bead part of an unvulcanized tire (called the green tire), etc. is done.

[0003]Such tire information is effectively used in production of a subsequent tire, a quality control, etc., and, as for the attachment work of a label, it is [ after fabricating a tire ] common to stick with handicraft, an automatic attachment machine, etc. before a vulcanization step at a tire bead part etc.

[0004]

[Problem(s) to be Solved by the Invention]However, the attachment position of a label spoils the appearance of a product tire, or. When the label separated in inside and also a character, rim wearing nature, etc. of a tire side are taken into consideration as the impression plaster of a vulcanization step or a rim, The position will be limited naturally, and there was a limit in carrying out manually from the precision prescribe of an attachment position, or the needs of automation, and also also when an automatic attachment machine was used, there was a problem which becomes complicated [ structure ] and expensive.

[0005]With comparatively easy composition, the purpose of this invention is stabilized with sufficient accuracy, and can stick a label, and also reads tire information in the stuck label with a label reader, and there is in providing the label sticking method and its device to the tire which made possible what is recorded on a database.

[0006]

[Means for Solving the Problem]In order that this invention may attain the above-mentioned purpose, a label sticking method to a tire of this invention, An unvulcanized tire which conveys in a label attachment position on a conveyor device, and has been conveyed by a carrying in

device is laid, Clamp an inner diameter part of this unvulcanized tire by a clasper which can open and close a halved clamp device which was installed in a label attachment position, and it positions, A head of a label sticking device installed in the lower part of a clamp device in this state is raised from a notch window formed in a clasper of said fixed side, A label which inputted tire information held on said head is stuck on a prescribed position of a bead part of an unvulcanized tire, and let it be a gist to read information inputted as a check of a label with a label reader after label attachment.

[0007]Here, after a label attachment position to an unvulcanized tire carries out vulcanization molding of the tire and equips with a rim, it is [ after sticking on a prescribed position of a tire bead part ] desirable [ a position ] that it is the position which hid in a rim. That is, without a stuck label spoiling appearance of a tire after vulcanization molding, in after, tire information can be taken out, and it can recognize and check.

[0008]A label sticking device to a tire of this invention, In a label attachment position to an unvulcanized tire between conveyor devices allocated in plural lines. Install a clamp device which holds an inner diameter part of an unvulcanized tire laid on said conveyor device, and positions and which can be gone up and down, and this clamp device, It constitutes from a clasper of a fixed side which provided a notch window, and a clasper of a movable side horizontally expanded and contracted to a clasper of this fixed side, A label sticking device provided with a label attachment head which holds caudad a label of a notch window of a clasper of said fixed side supplied from a label feed unit, and goes up and down from said notch window, Let it be a gist to have installed a check of a label stuck on an unvulcanized tire, and a label reader which reads tire information.

[0009]An outer diameter part of a clasper of said fixed side and a clasper of a movable side, It forms with curvature corresponding to an inner diameter part of an unvulcanized tire, and also said label sticking device holds the surface side of a label continuously supplied from a label feed unit by adsorption holding mechanism of a label attachment head, and it constitutes so that it may press to a prescribed position of a tire bead part elastically and may stick on it.

[0010]Said label reader reads tire information, such as tire sizes inputted into a label, quality information, and production information, and records it on a database.

[0011]Thus, the label sticking device can respond also to tire sizes of various sorts, and. shape -- it can stick on a profile part of a bead of an unstable unvulcanized tire in the state where it was stabilized often [ accuracy ] and automatically, and information on a label can be read automatically, and it can record on a data base.

[0012]

[Embodiment of the Invention]Hereafter, this embodiment of the invention is described based on an accompanying drawing.

[0013]The partial perspective view of a label sticking device for drawing 1 to enforce the label

sticking method to the unvulcanized tire W concerning this invention, Drawing 2 shows the outline top view of a label sticking device, drawing 3 shows the outline front view of a label sticking device, and said label sticking devices are plural lines (although it is two rows in this embodiment) at a predetermined interval. It is installed in the conveyor devices 1a, such as a gravity roller allocated for not limiting to a number in particular, and the label attachment position to the unvulcanized tire W between 1b.

[0014] Said label sticking device holds the inner diameter part of said conveyor device 1a and the unvulcanized tire W laid on 1b, And the clamp device 2 which positions and which can be gone up and down is installed, and this clamp device 2 is constituted so that it may go up and down the space part between the conveyor device 1a and 1b via the rise-and-fall cylinder S, as shown in drawing 3.

[0015] This clamp device 2 comprises the clasper 5 of the fixed side fixed to the base 4 in which the rectangular-head-like notch window 3 was formed, and the clasper 6 of the movable side horizontally expanded and contracted to the clasper 5 of this fixed side.

[0016] The clasper 6 of a movable side is constituted so that both-way sliding may be horizontally carried out via the cylinder 7 at the stopper block 4a fixed to said base 4, The outer diameter part of the clasper 5 of a fixed side and the clasper 6 of a movable side is circularly formed with the curvature corresponding to the inner diameter part Wa of the unvulcanized tire W. The contact part of an outer diameter can also be formed tapered shape or in the shape of a straight.

[0017] Under the notch window 3 of the clasper 5 of said fixed side, The label sticking device 11 provided with the label attachment head 10 which carries out adsorption maintenance of the label R supplied from the label feed unit 8, and goes up and down via the cylinder 9 from said notch window 3, The check of the label R stuck on the unvulcanized tire W and the label readers 12, such as a laser reader which reads tire information, are installed.

[0018] From the label feed unit 8, stick to said label sticking device 11 the surface side (field where the bar code was printed) of the label R stuck on the band-like film F supplied continuously, and in the adsorption face 10a of the label attachment head 10 by which sponge lining was carried out in this adsorption face 10a. The adsorption holding mechanism which a vacuum pad etc. do not illustrate is attached. And it is constituted so that the rear-face side (sizing side side) of the label R which carried out adsorption maintenance may be elastically pressed to the prescribed position of the tire bead part Wx and may be stuck on it in the adsorption face 10a of the label attachment head 10.

[0019] The volume attachment roll 13 which said label feed unit 8 stuck the label R on the band-like film F at the predetermined intervals, and was twisted around rolled form, The film guide 14 and the film F which removed the label R are rolled round, it comprises the \*\*\*\*\* roll 15, and it can be begun automatically to roll the film F which twisted and stuck the label R

from the roll 13 by making this rolling-up roll 15 rotate.

[0020] Said label reader 12 is installed in the flank of the label attachment head 10, and the read head 16, It is attached in the state where it was made to always incline toward the tire bead part Wx on which the label R of the unvulcanized tire W was stuck from the notch window 3 of the clamber 5 of a fixed side, Tire information, such as tire sizes inputted into the bar code of the label R, quality information, and production information, is read, and is recorded on the database of the control device which is not illustrated. The fluorescent lamp 17 is installed in the flank of the read head 16, and 18 shows conveyance of the unvulcanized tire W, and a carrying in device to it in drawing 3.

[0021] Next, the label sticking method to the unvulcanized tire W is explained.

[0022] Drawing 4 shows the partial enlarged drawing in the state where the label R was stuck on the prescribed position of the tire bead part Wx of the unvulcanized tire W, and attachment of this label R is performed as follows.

[0023] That is, the unvulcanized tire W which conveys in the conveyor device 1a and the label attachment position on 1b, and has been conveyed by the carrying in device 18 is laid, and the clamp device 2 halved via the rise-and-fall cylinder S in the inside diameter space part of the unvulcanized tire W in this state is raised, and it is made to insert in this invention.

[0024] Carry out the extension operation of the cylinder 7, make the diameter of the clamber 6 of a movable side expand horizontally, and make one inner diameter part Wa of the unvulcanized tire W contact from this state, and. Make the clamber 5 of a fixed side contact the inner diameter part Wa of another side of the unvulcanized tire W, and the inner diameter part Wa of the unvulcanized tire W is clamped, and it positions.

[0025] It is made to go up from the notch window 3 which formed the label attachment head 10 of the label sticking device 11 in the clamber 5 of the fixed side via the cylinder 9 from such a state, The label R which carried out adsorption maintenance is pressed and stuck on the prescribed position of the tire bead part Wx of the unvulcanized tire W in the adsorption face 10a of the label attachment head 10.

[0026] After sticking the label R on the tire bead part Wx, said label attachment head 10 is dropped to a position in readiness via the cylinder 9, The adsorption face 10a of the label attachment head 10 is made to carry out adsorption maintenance of the label R currently stuck on the film F which the label feed unit 8 twisted and \*\*\*\*(ed) from the roll 13.

[0027] Thus, after sticking the label R on the tire bead part Wx of the unvulcanized tire W, the information inputted into the label R as the check of the label R with the label reader 12 is read, and is made to record on the database of the control device which is not illustrated.

[0028] As mentioned above, the label sticking device 11 can respond also to the tire sizes of various sorts, and. shape -- it can stick on the profile part of the tire bead Wx of the unstable unvulcanized tire W in the state where it was stabilized often [ accuracy ] and automatically,

and the information on a label can be read automatically, and it can record on a data base.

[0029]

[Effect of the Invention] Since this invention was constituted as mentioned above, can respond also to the tire sizes of various sorts, and. shape -- it being accurate for the profile part of the tire bead of an unstable unvulcanized tire, and, And it can stick in the state where it was stabilized automatically, and since the device itself is comparatively easy composition, it can be manufactured cheaply, and also tire information is read in the stuck label with a label reader, and there is an effect recordable on a database.